

Notice of Allowability**Application No.**

10/587,518

Examiner

FRANCES TISCHLER

Applicant(s)

FREGOSO-INFANTE ET AL.

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/25/10.
2. ☒ The allowed claim(s) is/are 15-23.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 9/28/10.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

/Ling-Siu Choi/
Primary Examiner, Art Unit 1796

/Frances Tischler/
Examiner, Art Unit 1796

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/25/10 has been entered.

Status of the Claims

Receipt is acknowledged of the Applicant's response filed on 12/28/09. Claim 15 has been amended. Claims 1 – 14 have been cancelled. Claims 15 - 22 are now pending.

Response to Remarks

Claim 15 has been amended to include that the single phase reaction media is not miscible with an aqueous solution of terephthalic acid salt, which is sufficient to overcome the prior art of record and as such the rejections of record are hereby withdrawn.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Anne M. Kornbau on 9/29/10.

The application has been amended as follows:

In claim 17, lines 3 and 4, change “any source such as used beverage bottles and packages, and in any known shape, i.e. as fiber, film and the like.” to - - any source and in any known shape. - -

After claim 22, please add new claim 23 as follows:

23. The chemical process for recycling PET wastes of claim 17, wherein the waste particles are obtained from used beverage bottles, packages, fibers, films, and other shapes.

REASONS FOR ALLOWANCE

Claims 15 - 23 are allowed.

The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest reference of YAZAKI et al (US 6.580,005).

Applicant claims:

A chemical process for recycling PET wastes, the process comprising the stages of:

a) a saponification reaction stage, wherein PET waste particles are reacted with stoichiometric or excessive amounts of a strong base metal in an alcoholic reaction media that forms a single phase with ethylene glycol, which single phase is not miscible with an aqueous solution of a terephthalic acid salt, where the reaction is brought to the boiling temperature of the alcoholic reaction media and at atmospheric pressure, thereby obtaining as reaction products a salt of terephthalic acid with base metal and ethylene glycol, the latter being incorporated to the alcoholic reaction media;

b) a separation stage of such terephthalic acid salt from the alcoholic reaction media comprising the steps of:

i) cooling the reaction mixture to a temperature below 90°C;

ii) adding sufficient water to the reaction media in order to dissolve the terephthalic acid salt, thereby obtaining two phases, namely an aqueous phase where the terephthalic acid salt is dissolved, and an organic phase that consists of the alcoholic reaction media in which ethylene glycol is incorporated; and

iii) a liquid-liquid separation phase, wherein the aqueous phase containing the terephthalic acid is separated from the organic phase;

(c) a terephthalic acid formation stage, wherein from terephthalic acid salt of stage (b) terephthalic acid is obtained, reacting said salt with a stronger acid than terephthalic acid to form and precipitate the latter as crystals;

(d) a solid-liquid separation stage, wherein precipitated terephthalic acid in stage (c) is separated from the media where it was crystallized; and

(e) an ethylene glycol recovery stage, wherein ethylene glycol and the alcoholic reaction media are separated and recovered from the reaction media separated in stage (b).

YAZAKI discloses:

A process for recycling PET waste, comprising:

(a) a decomposition reaction with an alcohol and a base metal, the base metal being equi-molar or excess-molar relative to the PET, to form the salt of terephthalic acid and ethylene glycol

(b) a solid-liquid separation where the salt of the terephthalic acid is separated from the alcohol and

(c) addition of water to the terephthalic acid to dissolve said salt of terephthalic acid, and removal of insoluble impurities

(d) a crystallization step where a strong acid is added the solution of the salt of terephthalic acid to crystallize the latter

(e) a separation of the terephthalic acid crystals followed by washing and drying

(e) the alcohol is distilled and returned to step (a)

YAZAKI performs a solid-liquid separation of the terephthalic acid salt and the alcohol, then adds water only to the separated terephthalic acid salt, thereby failing to teach to cool the reaction media comprising both the terephthalic acid salt and the alcohol, to add water to said reaction media, and to perform a liquid-liquid separation of the resulting aqueous phase comprising the dissolved terephthalic acid and the alcohol phase.

No prior art teaches or fairly suggests the claimed process described above wherein the alcoholic reaction media forms a single phase with ethylene glycol which is not miscible with an aqueous solution of a terephthalic acid salt, wherein the temperature is cooled to below 90°C, wherein sufficient water is added to dissolve the terephthalic acid salt thereby obtaining two phases, namely an aqueous phase where the terephthalic acid is dissolved and an organic phase that consists of the alcoholic reaction media, wherein a liquid-liquid separation is done in order to separate the two phases.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANCES TISCHLER whose telephone number is (571)270-5458. The examiner can normally be reached on Monday-Friday 8:00AM - 5:30 PM; off every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jim Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ling-Siu Choi/
Primary Examiner, Art Unit 1796

Frances Tischler
Examiner
Art Unit 1796

/FT/